

CLAIMS

1. A method for ensuring operation of a motorized throttle, comprising the steps of:
 - detecting the presence of an obstruction inside the motorized throttle;
 - removing the obstruction to free the motorized throttle; and
 - recording a closed throttle position as a zero degree reference from which to control a throttle plate to a desired angle.
2. The method of claim 1 wherein the obstruction is ice.
3. The method of claim 1 wherein the step of removing the obstruction to free the motorized throttle is performed within a predetermined time.
4. The method of claim 3 wherein the predetermined time is 7 seconds.
5. A method of detecting the presence of an obstruction inside a motorized throttle, comprising the steps of:
 - recording a default position of a throttle plate;
 - applying a predetermined voltage to the throttle motor in the closing direction for a predetermined time;
 - recording a closed position of the throttle plate;
 - determining a first displacement between the recorded default position and the recorded closed position; and
 - identifying an obstruction if the first displacement is less than a predetermined displacement.
6. The method of claim 5 further comprising the steps of verifying the absence of defined faults and reporting the presence of an obstruction to a powertrain control module.
7. The method of claim 5 further comprising the step of reporting a frozen throttle condition if a throttle temperature is less than a predetermined temperature.
8. The method of claim 5 further comprising the step of alerting a powertrain control module that no obstruction exists if the first displacement is at least the predetermined displacement.
9. The method of claim 5 wherein the predetermined displacement is 7 degrees.

10. A method of removing an obstruction inside a motorized throttle, the throttle having a throttle plate, comprising the steps of:

applying a predetermined voltage to a throttle motor in a first direction;

and

applying the predetermined voltage to the throttle motor in a second direction.

11. The method of claim 10 wherein the step of applying a predetermined voltage to a throttle motor in a first and a second direction is performed within respective time periods.

12. The method of claim 10 wherein the effect of applying the voltages is to bang the throttle plate to clear the obstruction.

13. The method of claim 10 wherein the predetermined voltage is 12 volts.

14. A method of accurately recording a closed position of a throttle plate, comprising the steps of:

applying a predetermined voltage to the throttle plate in a closing direction for a predetermined time;

recording a closed position as a zero degree reference from which to control the throttle plate to a desired angle.

15. The method of claim 14 wherein the predetermined time is 40 milliseconds.

16. The method of claim 14 wherein the predetermined voltage is 12 volts.

17. A system for removing an obstruction inside a motorized throttle, comprising:

a throttle plate; and

a throttle motor, wherein the throttle motor applies a predetermined torque to the throttle plate in a first and a second direction, and wherein the throttle motor applies the predetermined torque to the throttle plate for a predetermined time in each direction.

18. The system of claim 17 wherein the predetermined torque is maximum steady-state torque.

19. The system of claim 17 wherein the predetermined time is 80 milliseconds.